WITHLACOOCHEE REGIONAL WATER SUPPLY AUTHORITY

Workshop Meeting Package

April 21, 2010
4:30 p.m.

Meeting Location:

Withlacoochee Regional Planning Council
Headquarters Conference Room
1241 SW 10th Street (SR 200)
Ocala, Florida 34474-0323

WITHLACOOCHEE REGIONAL WATER SUPPLY AUTHORITY

M E M O R A N D U M

To: Water Supply Authority Board of Directors and Interested Parties

From: Jackson E. Sullivan, Executive Director

Date: April 7, 2010

Subject: Workshop Meeting of the Withlacoochee Regional Water Supply Authority

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A workshop of the Withlacoochee Regional Water Supply Authority will be held on **Wednesday, April 21, 2010, from 1:00 p.m. to 4:00 p.m., at the Withlacoochee Regional Planning Council Headquarters Conference Room**, 1241 SW 10th Street (SR 200), Ocala, Florida 34474-0323.

Enclosed for your review are the following items:

- Agenda
- Workshop Package*

Please note that if a person decides to appeal any decision made by the Board with respect to any matter considered at the above cited meeting, he will need a record of the proceedings, and for such purpose, he may need to ensure that a verbatim record of the proceedings is made, which record includes that testimony and evidence upon which the appeal is to be based.

* For persons other than Board Members and government agencies, pursuant to Board policy adopted at the March 9, 1995 Meeting, a self-addressed 8.5 x 11 inch envelope, pre-stamped and with $3.00 postage should be sent to the WRWSA at the address below. Board packages may also be obtained free of charge at the Board meeting.

Enclosures

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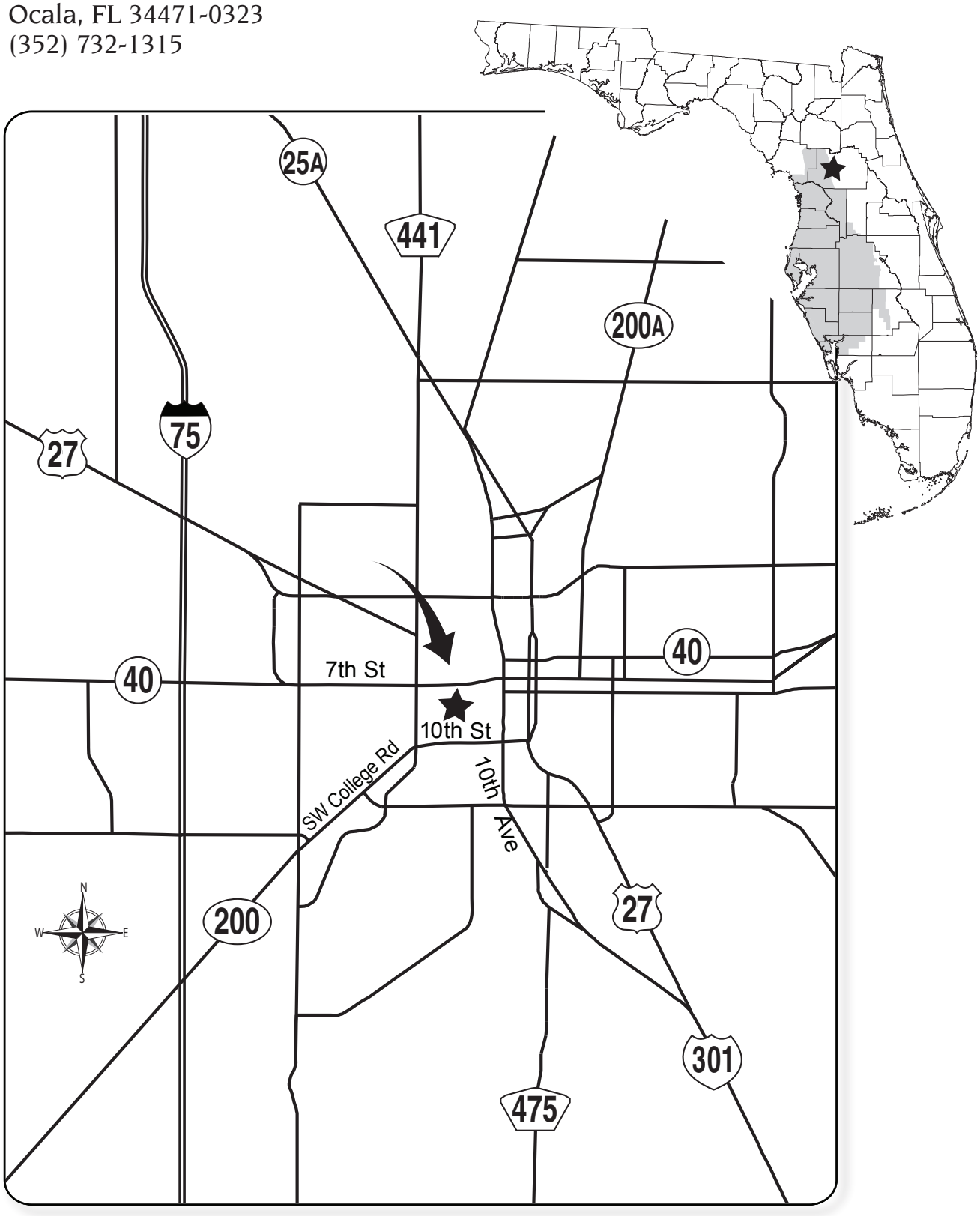

Note:
The Council's office is located approximately 2.6 miles east of Interstate 75 on State Road 200 and approximately.5 miles west of Pine Street, which is also US Highway 27, 301 & 401.

Withlacoochee Regional Water Supply Authority - Planning Workshop
Master Plan, Phase II – Detailed Water Supply Feasibility Analyses
"Consideration of Recommendations & Future Role(s) for the WRWSA"

Withlacoochee Regional Planning Council
1241 SW 10th Street
Ocala, FL 34471-0323
April 21, 2010 – 1:00 - 4:00 PM

1.	Introductions & Workshop Overview (1:00 – 1:05 PM)	Jack Sullivan, WRWSA
2.	Goals, Process & Projected Outcome (1:05 – 1:15 PM) of Facilitated Workshop	Sonny Vergara, Facilitator
3.	Water Supply Planning & Development (1:15 – 1:30 PM) within the WRWSA – Context for Workshop	Pete Hubbell, WRA
4.	Review & Prioritization of Phase II (1:30 – 3:00 PM) Recommendations	Sonny Vergara/Board

   a. Population & Water Demand
   b. Data Collection & Monitoring
   c. Regional GW Assessment
   d. Water Conservation
   e. Reclaimed Water
   f. Water Supply Options
   g. WS Partnership Options
   h. WRWSA Regional Framework

5.	Break (3:00 – 3:15 PM)	
6.	Discussion Summary - Wrap-up (3:15 – 3:45 PM)	Sonny Vergara/Board
7.	Next Steps (3:45 – 4:00 PM)	Jack Sullivan, WRWSA
8.	Adjourn (4:00 PM)	

April 2, 2010

To: WRWSA Board Members

From: Jack Sullivan, Executive Director, WRWSA

Re: WRWSA Board April 21, 2010 Workshop

Overview:

As you are aware, the Board has agreed to participate in a workshop to discuss the recommendations from the planning document - Phase II – Detailed Water Supply Feasibility Analyses. In previous Board presentations Water Resource Associates (WRA) has discussed the recommendations from the report. Implementation of some or all of these suggestions (attached) could have a significant impact on the direction that the WRWSA takes and responsibilities it assumes in the future.

Workshop Goal:

The goal of the workshop is to review and discuss the future role of the WRSWA. In general the recommendations in the Phase II report suggest a more active role for the Authority in water supply planning and development, and playing a bigger role with respect to these initiatives for its Members. From this discussion, we hope to identify not only the future priorities of the WRWSA but which of the report's recommendations will support achieving a successful outcome of these priorities.

It is anticipated that the Board may support some of the recommendations, be luke-warm on others and potential reject some from further consideration. Recommendations that the Board may want to consider adopting will potentially have implications. Those implications could be budgetary, staffing, a more deliberate role in water supply planning and development and impact the existing governance agreements between Members. These initiatives may require additional scoping before the Board would consider adopting them and we would recommend allowing us to "flesh" them out in greater detail and bring them back to subsequent Board meetings for discussion and consideration.

Workshop Approach:

In order to make the workshop as productive as possible we have condensed these recommendations into eight (8) broader categories. These categories are supported by the thirty (30) recommendations that are included in the Phase II report. Our approach for the workshop is to concentrate the Board on the categories first and then discuss the specifics of the recommendations that support them.

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These categories include:

1. Population and Water Demand: The Authority taking an active role in assuring that the water supply planning and development efforts remain current based on potential changes in population, water demand, competition from other large water users and impacts from domestic self supply.

    a. Update population numbers for the region and adjust water demands accordingly;
    b. Track changes in water use to determine potential impacts to Authority planning;
    c. Track large water users in the region; and
    d. Continue to monitor domestic self supply use and the potential impacts to the resource and Authority planning.

2. Data Collection and Resource Monitoring: To ensure that adequate data is collected and analyzed with respect to the region's water resources, the Authority needs to take a lead advocacy role to ensure coordination of both Authority and Member's needs to the WMDs. This includes:

    a. Resource Monitoring Programs;
    b. Funding for Hydrogeologic Studies;
    c. Minimum Flows & Levels, and
    d. Review of Surficial Aquifer System & Surficial Resources.

3. Regional Groundwater Assessment: Comprehensive and consistent groundwater predictive analyses are essential for cost-effect water supply planning and development. Currently the SWFWMD and SJRWMD modeling, data collection and analyses do not lead to consistent conclusions on groundwater availability. The Authority should stay engaged and encourage the Districts to develop better data and predictive analyses in the area including:

    a. Groundwater Modeling; and
    b. Groundwater Model Boundary Conditions.

4. Water Conservation: Water conservation is a key water management and water supply strategy for the region. The Authority should play a larger role in the conservation initiatives for the area and advocate on behalf of its Members. This includes:

    a. A Comprehensive WRWSA Conservation Initiative;
    b. Assistance to Member Governments on District Compliance Per Capita Requirements; and
    c. Active Role in Assisting the District with the "SWFWMD Water Conservation Model."

5. Reclaimed Water: Reclaimed water projects are another demand management tool that can positively impact per capita water usage and forestall the need for more costly potable water supply projects. Historically, the Authority has not taken an active role in the development of reclaimed water projects on behalf of its members. A refined role for the Authority would include:

    a. WRWSA Regional Reclaimed Water Supply Planning;
    b. WRWSA Reclaimed Water Implementation Plan;
    c. Participation in the Statewide Reclaimed Water Workgroup; and
    d. Assistance in Promoting Cooperative Funding for Member Government Projects.

6. Water Supply Options: Phase II identified water supply options for short-, mid- and long-term planning horizons. The related recommendations emphasized the WRWSA role in pursuing water supply options on behalf of its Members. Short-term the pursuit of groundwater projects was recommended as they are the least costly and can satisfy most short and mid-term water demand requirements. The Authority should also begin looking at land needed for projects and pipeline corridors before future development precludes opportunities.

    a. Pursue short-term groundwater water supply options including Sumter Wellfield, Citrus Wellfield, Northwest Marion Wellfield and Northeastern Wellfield;
    b. Begin to determine and look at securing pipeline corridors for both short-term groundwater projects, interconnections between existing systems and for the ultimate introduction of AWS;
    c. Determine potential land for the development of water supply projects and working with the WMDs to attempt to secure future water supply development, including desalination at Crystal River; and
    d. Work closely with the SWFWMD on the development of minimum levels for Lake Rousseau.

7. Water Supply Partnerships: Phase II also recommended that the Authority play a bigger role in developing partnerships amongst Members for regional water supply development. This includes:

    a. Coordination with the SWFWMD to develop incentives for regional water supply development in the region including groundwater;
    b. Assisting Members who must comply with AWS special conditions as part of their WUP and CUP;
    c. Working with Members to consistently develop 10-year Facility Work Plans; and
    d. Work to develop collaboration with potential partners on water supply options.

8. WRWSA Regional Framework: The WRWSA Regional Framework provides a vision for future water supply infrastructure within the Authority. The plan will require a significant amount of involvement by the Authority over the coming years to ensure that

it is effectively implemented. Buy-in to the Regional Framework by Authority Members is an important initial step of the process.

a. Hold a visioning workshop with the Board regarding the Regional Framework and other Phase II recommendations;
b. Discuss the existing governance of the Authority to ensure that potential expanded roles are adequately addressed in the Authority's by-laws and agreements; and
c. Consideration of expanded funding options for Authority operations based on potential new roles.

I have also included a copy of the Workshop Agenda from which you can see we have a lot to cover in 3-hours. If you have any questions regarding this information, please contact me before the workshop.

Thanks!

Chapter 13 – Recommendations

13.0 Introduction

This recommendations chapter of this WRWSA – Detailed Water Supply Feasibility Analyses is an attempt to develop and raise a series of recommendations, observations and options for consideration by the WRWSA and member governments. The following are not prioritized or set in any sequential order but are important to consider by the WRWSA in these relatively uncertain times with respect to sustainable water supply for its members. The recommendations can set the stage for considerable discussion and deliberation with the WRWSA Board as they consider the existing and future role of the Authority and the potential impact for its members and the region.

13.1 Population and Water Demand

13.1.1 Population and Projected Water Demand Updates

Updates of the population and water demand within the WRWSA are important to keep water supply planning as viable and current as possible. These updates should take place on a regular basis, every five-years, concurrently with the SWFWMD update of their RWSP. However, if the population projection updates from BEBR demonstrate a dramatic departure from the previous projections an update should be considered at that point. When interpreting SWFWMD demand projections, utilities should consider the effect of the compliance per capita rules.

13.1.2 Tracking of Water Use Types and Quantities

The WRWSA should track closely water uses other than public supply. Although public supply is and will continue to be the largest of the water use increases (70%), all other water uses are also projected to increase. Trends in agricultural, industrial/commercial and recreational water use can change, either increasing or decreasing at an unanticipated rate and potentially impacting the WRWSA public supply water use planning.

13.1.3 Large Water Use Tracking

Potential large water users of all water use types should be tracked by the WRWSA. WUP and CUP applications to the SWFWMD and the SJRWMD for demands over a certain water quantity threshold should be requested from the water management districts to determine if the proposed water use will affect the WRWSA planning efforts.

13.1.4 Domestic Self-Supply Water Consumption

Domestic self supply (DSS) water use within the WRWSA is projected to increase from an estimated 17.63 mgd in 2005 to 30.22 mgd in 2030, a 71% increase. This increase could be further exacerbated by stringent compliance per capita rate requirements instituted by the SWFWMD and contemplated by the SJRWMD. The use of domestic wells within the service areas of public supply utilities could have a positive impact on per capita rates but a net negative impact to the water resources of the area.

The impact of DSS to the water resource is not fully understood but is being analyzed by both water management districts. The WRWSA should participate in these discussions and support efforts to quantify and determine the potential impact of DSS on the availability of water resources and the potential impacts to the water resource.

13.2 Hydrogeologic Data Collection and Resource Monitoring

13.2.1 Monitor Lower Floridan Aquifer (LFA) and Surficial Aquifer Data Collection Activities

Hydrogeologic data collection and resource monitoring remains an important initiative within the WRWSA to better understand the groundwater resources of the region. Groundwater modeling and other interpretative analyses are hampered by the lack of comprehensive data on the aquifer systems. This is particularly evident in northeast Sumter and southeast Marion Counties where the hydrogeology is complex and aquifer characteristics and water quality are highly variable.

This is also an area where traditional groundwater supplies are limited due to potential impacts to MFLs that have been established on several lakes in the area and other surficial features. The LFA in this area is a potential water supply source for both potable and non-potable uses. However, the LFA is not well studied in the area and its aquifer characteristics and water quality appear to be highly variable. The WRWSA role in assisting the SWRWMD and SJRWMD in data collection is important to verify whether the LFA is a viable water source for future development.

13.2.2 Develop and Coordinate Resource Monitoring Program between SWFWMD and SJRWMD in Northern Sumter and Southern Marion County

As mentioned, the area in northern Sumter and southern Marion Counties has a high degree of uncertainty and an understanding of the aquifer system. This in part is due to the limited availability of hydrogeologic information that has been generated. This is also an area where SWFWMD and SJRWMD have differing opinions on the amount of groundwater that is available for development; which is in part due to the use of different planning criteria for potential impacts to wetlands.

The WRWSA should continue to be engaged in this issue and facilitate a coordinated monitoring program between the districts. An emphasis of WRWSA engagement should be at the regulatory level to ensure that resource evaluation during permitting is consistent for members in the region. As groundwater supplies diminish, the WRWSA should facilitate the development of a common set of resource evaluation methods, educate members on appropriate supply strategies and advocate on their behalf with the WMDs. This will ensure that adequate attention and resources are directed at this rapidly growing area with significant water demands.

13.2.3 Funding for Hydrogeologic Studies

The WRWSA should continue to work closely with the SWFWMD and the SJRWMD to determine, prioritize and fund needed hydrogeologic work within the region. This hydrogeologic

information provides the basis for water supply availability and is critical to meaningful and cost-effective water supply planning and regulation within the WRWSA.

13.3 Regional Groundwater Assessment

13.3.1 Groundwater Models

The ND Model (utilized by the SWFWMD) requires a complete peer-reviewed calibration and the NCF Model (utilized by the SJRWMD) requires updating. The conceptual representation of the surficial aquifer in Marion and Sumter Counties must be similar in both models. Recharge, which has been addressed differently in the ND and NCF Models, must be applied in a consistent manner so that comparable results are generated. The WMDs and member communities are increasing their investments in hydrogeologic data collection in the region. This new field data will provide insight to the function of the aquifer system, so the knowledge should be coordinated with member communities through the WRWSA and the WMDs. As additional information is gained, the ND Model has the potential to offer precise predictions of aquifer system behavior due to its transient capabilities and fully three-dimensional representation of the aquifer formations.

13.3.2 Groundwater Model Boundary Conditions

As groundwater supplies reach their sustainable limits in many areas of Florida, regional aquifer level declines could affect water supply management strategies in the WRWSA region. To assess this affect, boundary conditions of the WMD models have been adjusted to reflect projected aquifer level declines from outside the region. However, these boundary adjustments currently reflect regional aquifer declines that the SJRWMD has determined to be unacceptable and thus further groundwater development will not be allowed by their regulatory program. We believe that this approach may be overly conservative. As regional withdrawals increase over time, this practice has the potential to distort estimates of groundwater availability in the models used in the WRWSA. Currently, groundwater model boundary conditions utilized by the SJRWMD consider projected water demand and associated groundwater withdrawals which create drawdown results that overestimate impacts to environmental features in the area.

Further coordination on groundwater modeling and associated boundary conditions must continue between the SWFWMD, SJRWMD and the WRWSA to ensure consistent management and water supply development strategies within the WRWSA.

13.3.3 Resource Assessment

13.3.3.1 MFLs

MFLs need to be adopted in a timely manner for the WRWSA region. A number of springs, rivers and lakes are scheduled for completion by SWFWMD and SJRWMD within the next five (5) years. These MFLs will protect area water resources and the environment from significant harm due to water withdrawals and determine limits on additional groundwater and potential surface water withdrawals.

As detailed in this report, for waterbodies and watercourses where MFLs have yet to be adopted, proxy thresholds were established as a resource constraint on water development for

this interim period. As MFLs are established and adopted the WRWSA must review, comment and track their progress. If the adopted MFLs differ significantly from the proxy thresholds established for the report, analysis should occur to determine if this difference will have significant impact on recommendations or prioritization from the report. As with past initiatives, proposed MFLs within and surrounding the WRWSA should continue to be analyzed.

13.3.3.2 Surficial Aquifer System and Surficial Resources

A better understanding of the relationship between surficial water resources and the aquifer system within the region is needed. The impact of cumulative aquifer level decline on wetlands and lakes located in the region's sandhill areas is poorly understood. In the SJRWMD area of jurisdiction within Marion County, a restrictive 0.35-foot WMD threshold for aquifer decline has been applied to wetlands perched 20-feet above the water table which are unlikely to be affected by groundwater withdrawals. Additional monitoring, analysis, and field data collection will improve the understanding of surficial water resources.

13.4 Water Conservation

13.4.1 WRWSA Role in Regional Water Conservation

The WRWSA has had a comprehensive program for supporting water conservation within the region for over 10-years. This program has provided grant monies to fund conservation initiatives based on proposals submitted by WRWSA members. This has developed into the WRWSA Regional Water Conservation Program which disseminates water conservation information, funds water conservation programs and initiatives and co-funds water conservation coordinators for county governments. The importance of this program and the WRWSA role in water conservation cannot be overemphasized with diminishing water supplies and compliance per capita requirements from the SWFWMD.

Water conservation information from the "SWFWMD Non-Agricultural Water Conservation Modeling" should be utilized by the WRWSA and its members to develop cost effective conservation programs that directly target high per capita usage. This District model analyzes local government demographics and determines the best combination of conservation programs that have the highest potential of success for a given community. The WRWSA should develop a comprehensive plan that targets and prioritizes water conservation programs that will be effective in reducing water demands for member governments. This "WRWSA - Water Conservation Initiative (Conservation Initiative)" should target members with high compliance per capita rates and assist in tailoring water conservation strategies and initiatives that will reduce water usage utilizing the SWFWMD model.

The Conservation Initiative should develop a five (5) year water conservation program that prioritizes and develops budgets for member government conservation initiatives. The Conservation Initiative will better direct WRWSA funding through its cooperative conservation funding program. It will also demonstrate to the SWFWMD a regional and comprehensive approach to water conservation that will prioritize cost-effective initiatives for funding through their Cooperative Funding Initiative.

13.4.2 SWFWMD Compliance Per Capita

Water demand projections for the 2030 planning horizon will vary dramatically utilizing planning numbers based on historical per capita rates versus projections based on the compliance per capita rate instituted by SWFWMD and contemplated by the SJRWMD. Within SWFWMD alone, approximately 21 mgd of water will be saved by 2030 when analyzing unadjusted per capita rates. Compliance per capita rates are not only important to WRWSA member governments because of the regulatory consequences but also the ability to delay costly water supply development projects.

The WRWSA should work with its members and the District to develop strategies for implementing aggressive water conservation programs. Compliance per capita rates must be met by each individual utility by 2018. Fifty percent of the required per capita rate must be reached by 2014. Demand reduction initiatives can take considerable time to be funded, implemented and results realized. Member governments must act aggressively in order to ensure that they remain within SWFWMD regulatory compliance.

13.4.3 "SWFWMD Non-Agricultural Water Conservation Modeling" (SWFWMD Model)

As mentioned, based on the implementation of the compliance per capita requirements by the SWFWMD, the WRWSA should take an active role in assisting member governments in meeting the new standard. The WRWSA should facilitate workshops and individual meetings with the SWFWMD and WRWSA members to assist in the utilization of the SWFWMD Model. The SWFWMD Model based on individual member government demographics will target the most effective conservation programs and initiatives for implementation.

The results of these workshops and meetings will be a series of prioritized, cost-effective water conservation programs and initiatives. This information will be incorporated into the "WRWSA - Water Conservation Initiative" that will be used for project ranking and funding.

13.5 Reclaimed Water

13.5.1 WRWSA Role in Regional Reclaimed Water Supply Planning

The water supply role of reclaimed water will continue to increase and expand over time in the WRWSA region. Working with member governments, the WRWSA should take a proactive role in the analyses and promotion of reclaimed water projects for its members. The goal is to articulate the need for reclaimed water to supplant the development of new water sources, prevent resource impacts and offset high compliance per capita rates. Strategies for a WRWSA role in reclaimed water planning should be developed as described below.

13.5.2 Subregional Planning – WRWSA Reclaimed Water Implementation Plan (Reclaimed Plan)

Subregional Reclaimed Plans should be developed which articulate the need for specific projects and obstacles and opportunities for their implementation. The Reclaimed Plans would identify projects that are cost-effective and will have the greatest impact in their subregion.. The WRWSA Reclaimed Plans would be developed in cooperation with member governments and utilize information provided by member governments, the WRWSA, and the SWFWMD and

SJRWMD. The Plans would develop both priority projects and multi-year budgets for a 10-year period. The Reclaimed Plans would be updated periodically and would be submitted together with member governments Cooperative Funding Initiative applications to lend support that those reclaimed projects fit into a regional reclaimed water strategy.

13.5.3 WRWSA Reclaimed Water Workgroup

Though some regions of Florida have experienced great success with reclaimed water supplies, other regions have not been so fortunate. A statewide workgroup is developing policy recommendations to facilitate the addition of reclaimed water customers to utility systems. A WRWSA reclaimed workgroup could be a liaison to state policy efforts and develop strategies specific to the WRWSA region to enhance beneficial use of this resource. The workgroup would be composed of member governments and representatives from FDEP, SWFWMD and the SJRWMD, and would meet periodically to discuss reclaimed water issues in the WRWSA.

13.5.4 Cost-Share Funding for Beneficial Reuse Projects

Utilizing the Reclaimed Plan, the WRWSA should work with SWFWMD and SJRWMD to ensure cooperative funding for beneficial reclaimed water projects in the region. A long-term plan that is tied and prioritized to offsetting water demands, preventing resource impacts, and lowering per capita rates should gain support because it will ensure that District monies will be geared towards the most cost-effective and meaningful projects.

13.6 Water Supply Project Options

13.6.1 Potable Traditional Water Supply Development

Within the WRWSA – Detailed Water Supply Feasibility Analyses the following projects have been the focus of the analyses of the WRWSA region: **Fresh Groundwater:** Sumter Wellfield; Citrus Wellfield; Northwestern Marion Wellfield; and the Northeastern Marion Wellfield. Each of these projects reflects the cost-competitiveness of utilizing dispersed groundwater versus potable alternative water supplies.

The Sumter and Northwestern Marion Wellfields are recommended for possible implementation in the Short-Term (0-20 years). The Citrus and Northeastern Marion Wellfields are recommended for possible implementation in the Mid-Term or Long-Term (15-35 or 30-50 years).

13.6.2 Potable Alternative Water Supply Planning

Within the WRWSA – Detailed Water Supply Feasibility Analyses the following projects have been the focus of the long range AWS analyses of the WRWSA region: **Surface Water:** Lake Rousseau; Withlacoochee River near Holder – Reservoir; and the North Sumter "Conjunctive Use" Supply. **Aquifer Recharge:** the Withlacoochee River Aquifer Recharge near Trilby, and **Seawater:** Crystal River Power Plant Seawater Desalination. Each of these projects reflects the higher costs of utilizing potable alternative water supplies versus traditional groundwater supplies. Flexible strategies are needed to ensure that suitable supplies are available when

groundwater is depleted and AWS is required to meet future water demands in the WRWSA region.

None of the potable AWS projects are recommended for possible implementation in the Short-Term (0-20 years), and further updates will be needed to refine these complex and challenging projects as growth occurs over time. The **Surface Water:** Lake Rousseau and North Sumter "Conjunctive Use" Supply projects are recommended for possible implementation in the Mid-Term or Long-Term (15-35 or 30-50 years). The **Seawater:** Crystal River Power Plant Seawater Desalination is recommended for possible implementation in the Mid-Term or Long-Term (15-35 or 30-50 years). The **Surface Water:** Withlacoochee River near Holder – Reservoir project is not recommended for possible implementation due to the high cost of the reservoir. The **Aquifer Recharge:** the Withlacoochee River Aquifer Recharge near Trilby project is not recommended for WRWSA implementation, but may be pursued by other entities.

Additional study is underway by the SJRWMD on the Lower Ocklawaha River and desalination from the east coast of Florida (Coquina Coast Desalination Plant). These two projects are being considered for utilities on the east- coast of Florida and certain inland locations. These projects could potentially provide alternative water supply to WRWSA members, but are not evaluated by the WRWSA.

These additional AWS opportunities being investigated outside of the WRWSA could factor into the decision process for one (1) or more AWS projects for future development. The WRWSA must be a part of the ongoing dialogue and planning processes that are continuing forward. The WRWSA should keep abreast of work that is being done by the SJRWMD on the Ocklawaha River and Coquina Coast Desalination as well as alternative water supply efforts in Lake County. The studies focusing on the viability of these sources as water supplies could factor into the AWS planning for the WRWSA, along with actual patterns of growth and further technical studies in the WRWSA.

13.6.3 Pipeline Corridors

One of the long term challenges facing the WRWSA region is the long distance between the potable alternative water supply sources and the population centers. Transmission may account for over 50% of the cost for these supplies. Corridors for alternative water supply delivery should be acquired well in advance of this need, so that transmission can be constructed while avoiding interferences and cost overruns. Planning efforts should seek to reduce these transmission distances before the potable alternative water supply projects are needed.

The most significant long range corridor need is from the alternative water supply sources in Citrus County south to Hernando County. A feasibility study should be performed to identify and subsequently acquire lands for the pipeline corridor. The study should review public ROWs and easements, subsurface utilities, and roadway expansion plans. The same corridor could be used to interconnect Citrus County's northern and southern service areas, which will be a significant need in the mid-term. The study should be coordinated closely among Citrus County, Hernando County, and the WRWSA.

13.6.4 Land Acquisition

The highest land acquisition priority is for the Northern Sumter Wellfield. In this area, The Villages is proceeding with additional conservation efforts and importing more reclaimed water for beneficial supply. The City of Wildwood is testing the LFA for suitability as an additional local source. Wide-ranging resource monitoring efforts are also underway in this area. SWFWMD regulatory is not yet able to determine the quantity of dispersed groundwater that is needed, so a participation agreement with the utilities can not be developed. However, some amount of dispersed groundwater will likely be required in this area and the locations where it can be safely developed are limited. Working cooperatively with the WRWSA, SWFWMD should consider acquisition of suitable lands for the wellfield. This will ensure that the Northern Sumter Wellfield is available to meet the service requirements when it is needed.

Land acquisition opportunities for other groundwater and AWS projects identified in this report should also be considered by the District's land acquisition programs as tracts of land are evaluated, scored and prioritized for potential purchase.

13.6.5 Lake Rousseau

Current water treatment technology, available resource assessment tools and projected demands suggest that Lake Rousseau will be the most cost-effective WRWSA potable alternative water supply project. This understanding may evolve in the future as additional study occurs; currently, the most significant presumption is that sufficient yield will be available in the absence of an adopted MFL. The Lower Withlacoochee River MFL is scheduled for adoption by the SWFWMD in 2011. The adoption of this MFL will enable the WRWSA to initiate a substantive dialogue on whether seawater desalination or surface water development should be prioritized.

13.6.6 Seawater Desalination at Crystal River

The cooling flows at the Crystal River Power Plant offer significant advantages to a seawater desalination facility. The synergy of the combined operation is that the cooling flows can dilute the discharge of saline concentrate from the RO process which would otherwise be very costly to dispose of. Likewise, the Cross Florida Barge Canal offers water quality that is considerably less saline than seawater for inflow to the RO plant. However, large freshwater discharges from Lake Rousseau (both from operational and non-operational inflows) into the canal will provide unprecedented operational challenges to developing this source. These inflows of freshwater provide significant swings in water quality that will have to be considered in the design of the facility.

Land to locate the desalination facility is also in short supply in the area of the Crystal River Power Plant. An ongoing dialogue and coordination with Progress Energy, the SWFWMD and the WRWSA should occur to ensure that the potential for desalination will not be overlooked as future plans for energy production in the area mature.

13.7 Water Supply Partnership Opportunities

13.7.1 Incentives for Regional Water Supply Development

The WRWSA should work with the SWFWMD and the SJRWMD to create incentives for the regional development of both traditional groundwater supplies and AWS. Although incentives are in place for the regional development of AWS on a statewide basis, incentives for a regional approach to remaining groundwater development should be pursued. Regional systems are a new concept within the WRWSA and will be required to ensure that groundwater development is maximized and is completed in an environmentally and economically sound manner.

Incentives can be monetary including the expansion of the cooperative funding initiatives or land acquisition. Regulatory incentives could include longer duration withdrawal permits (20 year), consolidated permitting or other incentives that would enhance a regional approach for the development of water supplies in the region.

13.7.2 AWS Permit Conditions and Resource Evaluation

The SJRWMD has expressed concern over regional aquifer declines and groundwater availability in the WRWSA region. While the SWFWMD and SJRWMD have been issuing groundwater permits in Marion County, many utilities have alternative water supply development conditions in those permits. The WRWSA should work with the utilities, the SWFWMD, and the SJRWMD to establish a common understanding of resource conditions for utilities to meet these conditions in an environmentally and economically sound manner.

13.7.3 10-Year Water Supply Facility Workplans

State rules now require local governments to address the availability of water supplies and public facilities serving areas of projected growth in a local government comprensive plan. Florida statutes authorize the Districts and other governmental agencies to provide substantive input during the local government comprehensive planning process. Where regional or multijurisdictional water issues are involved with the local government comprehensive plan, the WRWSA should work with member governments to provide supporting information for their 10-year facility workplans.

13.8 WRWSA Water Supply Regional Framework

13.8.1 Visioning

The Framework has been presented to the WRWSA Board and several member governments as it has evolved. However, there has never been an interactive, comprehensive presentation in a workshop or visioning session. The Framework has implications for not only the WRWSA but for each member government. It is recommended that another session or series of workshops is scheduled for WRWSA members and member governments. It is also recommended that this be held outside of the monthly Board meeting, to give the review and discussion of the Framework the focus and attention that it deserves.

This session should be run by an outside facilitator. This would give both WRWSA administrative staff, Board members and technical support the opportunity to more readily participate in the workshop/visioning session.

13.8.2 Governance

Based on the outcome of the visioning/workshop session on the Framework, a comprehensive review of the WRWSA governance documents should be completed. The current governance documents should be amended to reflect the recommendations and initiatives approved by the WRWSA Board from the visioning session if warranted.

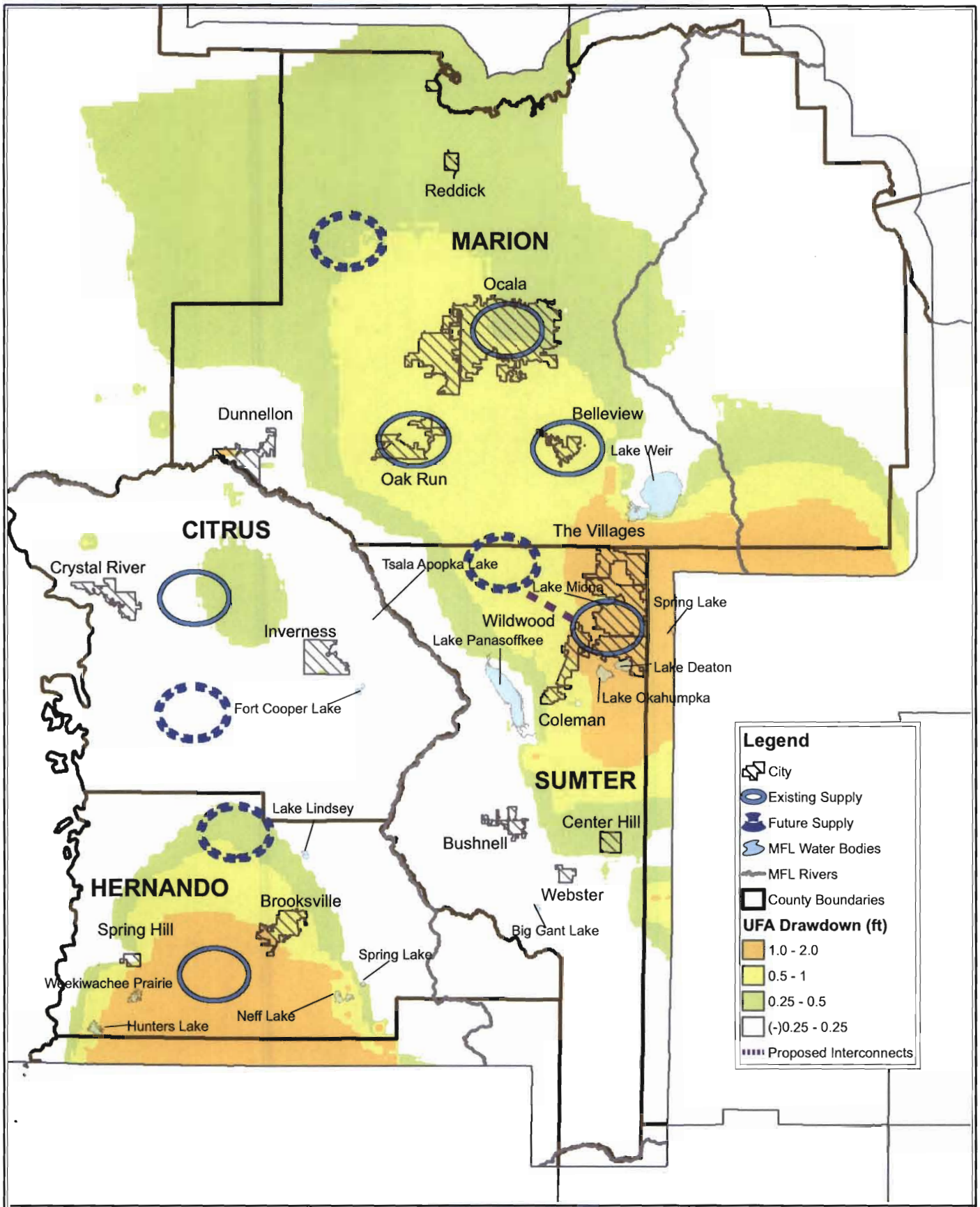
13.8.3 Funding

As part of the review of the WRWSA governance documents a review of the funding mechanisms to support the administrative, technical and operations functions of the agency should also be considered. The current funding criteria were set under an old model and readdressing the funding formula would complement the other reviews that the WRWSA may be contemplating. This would include but not be limited to the per capita rate per member and readdressing the agreements and funding mechanism with Citrus County on the CAB 1 & 2 Wellfields.

Maps depicting a short, mid and long-term scenario for development of infrastructure over time for the eventual distribution of alternative water supplies within the region

Referred to as:

"The Regional Framework"



Water Resource Associates, Inc.
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Figure 12-2
Regional Framework
Short-Term Groundwater Development

ORIGINAL DATE: 12-23-2009
REVISION DATE: NA
JOB NUMBER: 0468
FILE NAME: Fig 12-2 Regional...mdx
GIS OPERATOR: LEF

N W E S

1 inch = 7.1 Miles

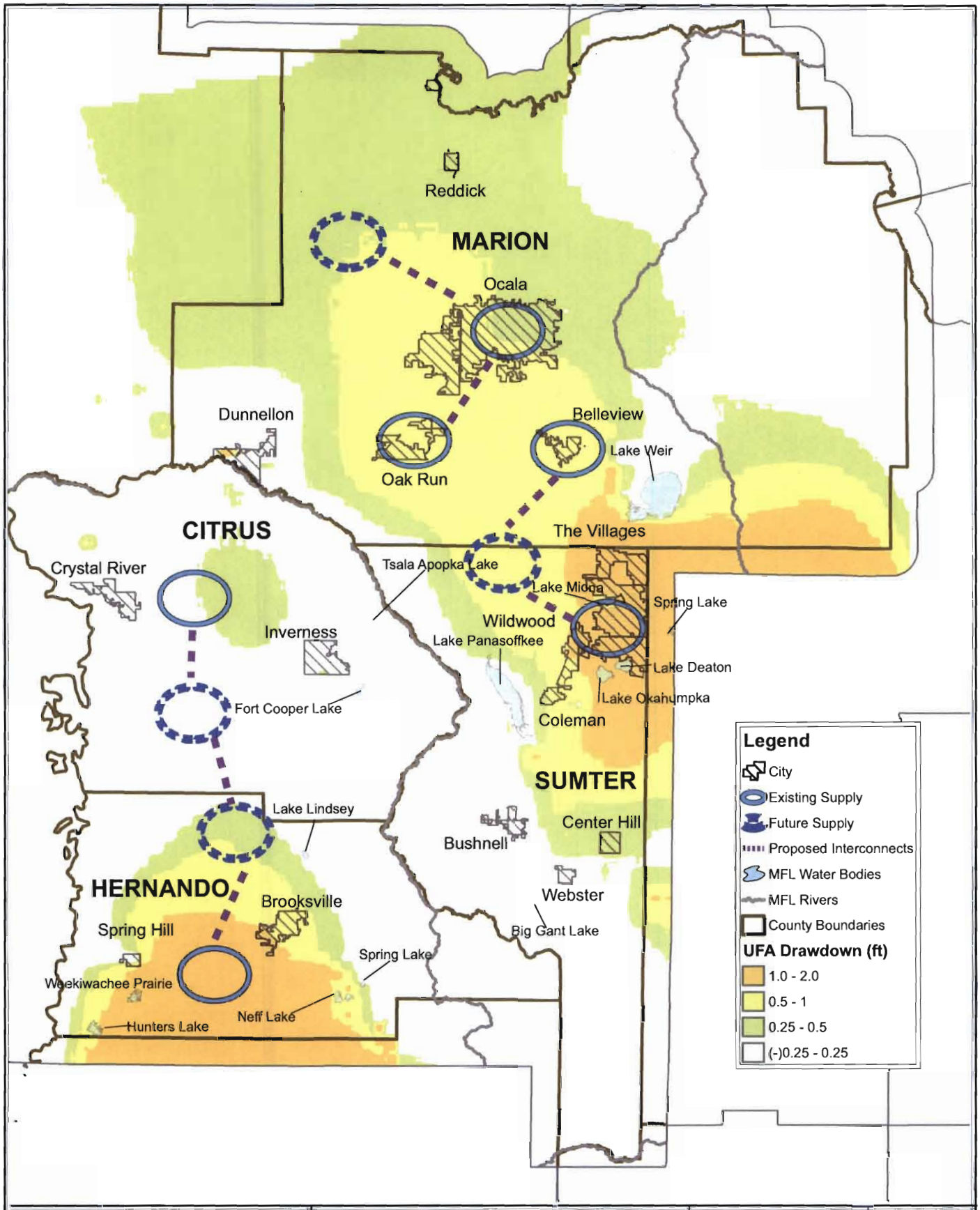

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Figure 12-3
Regional Framework
Mid-Term Regional Interconnects

ORIGINAL DATE: 12-23-2009
REVISION DATE: NA
JOB NUMBER: 0468
FILE NAME: Fig 12-3 Regional...mdx
GIS OPERATOR: LEF

N W E S

1 Inch = 7.1 Miles

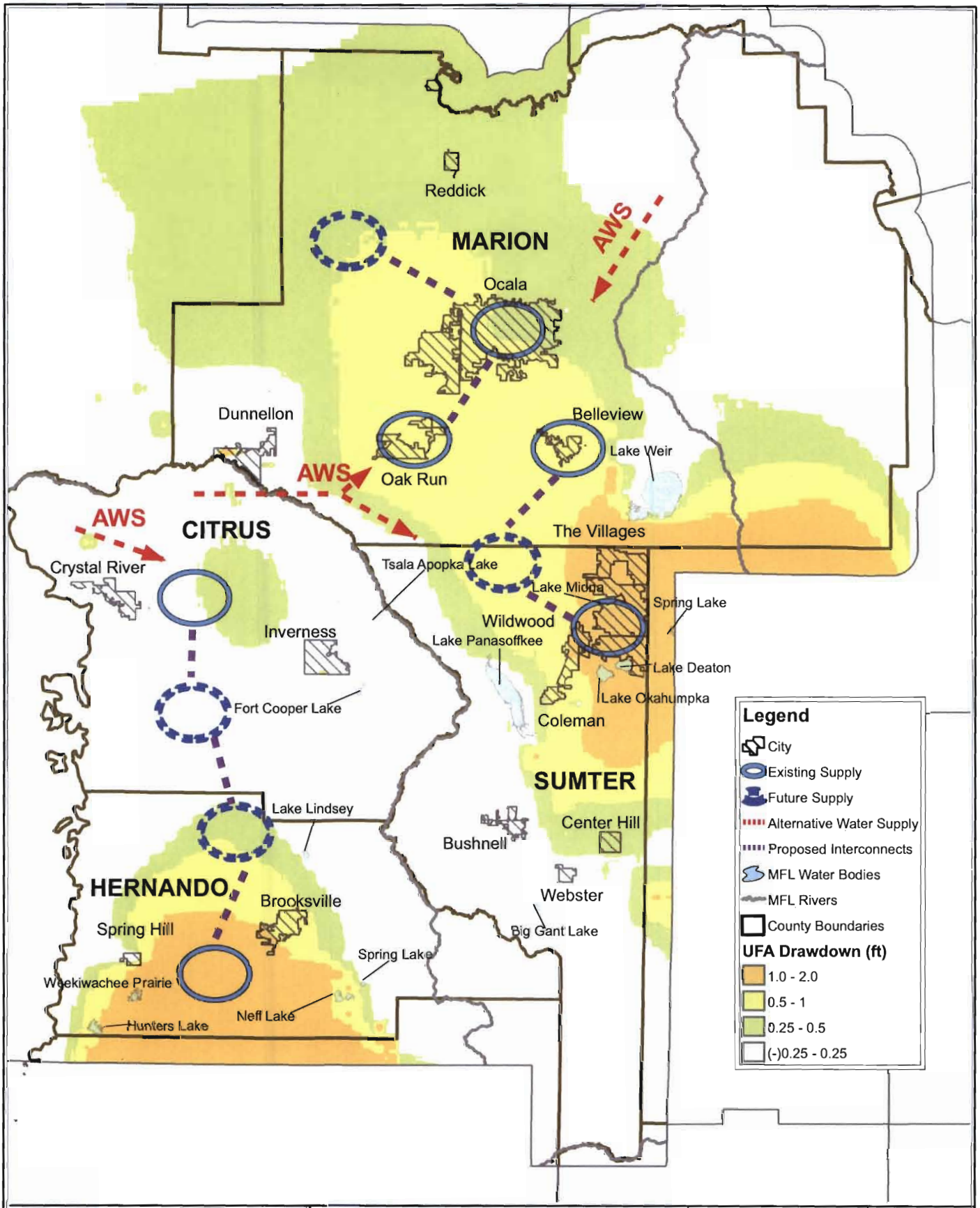

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Figure 12-4
Regional Framework
Long-Term Introduction of AWS

ORIGINAL DATE: 12-23-2009
REVISION DATE: NA
JOB NUMBER: 0468
FILE NAME: Fig 12-4 Regional...mdx
GIS OPERATOR: LEF

N
W E
S
1 Inch = 7.1 Miles

MEMORANDUM

Prepared by:
Commissioner Dennis Damato

"Comments on the impact of the Phase II Regional Water Supply Plan on Citrus County and specifically Commissioner Damato's district."

COMMENTS:

REGIONAL WATER SUPPLY PLAN UPDATE - PHASE II
W.R.W.S.A. DETAILED WATER SUPPLY
FEASIBILITY ANALYSIS

FOR: CITRUS COUNTY

FROM: COMMISSIONER DENNIS DAMATO

SHORT TERM:

- NEAR TERM PROJECTS MIGHT BE DEFFERED AS CONSERVATION PROJECTS ARE IMPLEMENTED. MANY REGIONAL UTILITIES MUST LOWER THEIR PER CAPITA CONSUMPTION TO 150 GALLONS PER DAY BY 2018.

- RIGHTS-OF-WAYS SHOULD BE IDENTIFIED AND SECURED TO ALLOW FOR FUTURE DEVELOPMENT OF A REGIONAL WATER SUPPLY. THIS WOULD REQUIRE THE NEAREST TERM ACTIONS AS WELL AS FUNDING.

- IDENTIFY AND DEVELOP ADDITIONAL WELLFIELDS PER THE PLAN RECOMENDATIONS.

SHORT TERM: (CONTINUED)

- IDENTIFY AND DEVELOP STRATEGY AND FUNDING TO INTERCONNECT EXISTING AND PROPOSED POTABLE WATER RESOURCES.

WATER RE-USE:

CITRUS COUNTY - THE WASTE WATER TREATMENT PLANT AT MEADOWCREST HAS BEEN UPGRADED. REUSE WATER READY FOR DELIVERY TO THE BLACK DIAMOND GOLF COURSE.

CITY OF INVERNESS - THE NEW WASTE WATER TREATMENT PLANT HAS BEEN UPGRADED TO DELIVER REUSE WATER TO THE INVERNESS GOLF & COUNTRY CLUB.

CITY OF CRYSTAL RIVER - WORKING ON A STUDY TO UPGRADE THE EXISTING WASTE WATER TREATMENT PLANT FOR WATER REBSE WITH THE PROGRESS ENERGY PLANT AS A POTENTIAL CUSTOMER.

MID TERM:

LAKE ROUSSEAU:

INVESTIGATE THE WATER BODY AS A POTENTIAL ALTERNATIVE WATER SOURCE.

N. W. CITRUS COUNTY:

DETERMINE THE WATER USE REQUIREMENTS FOR PROPOSED DEVELOPMENTS AT: HOLLINSWOOD HARBOR, RIVER LODGE RESORT AND THE CARUTH PROPERTY.

DETERMINE THE WATER USE REQUIREMENTS FOR EXISTING DEVELOPMENT AT: PROGRESS ENERGY COMPLEX, 7 RIVERS REGIONAL MEDICAL CENTER, AND THE MANY AREA HOMES THAT HAVE POOR QUALITY GROUND WATER.

SOUTH LEVY COUNTY:

REACH OUT TO THIS AREA UNDER SWFWMD JURISDICTION TO PARTICIPATE & JOIN WRWSA INCLUDING THE TOWNS OF INGLIS & YANKEETOWN IN ADDRESSING POTABLE WATER ISSUES.

THIS AREA IS IN CLOSE PROXIMITY TO LAKE ROUSSEAU, EXISTING & NEW DEVELOPMENT IN CITRUS COUNTY, AND HOME TO THE FUTURE PROPOSED PROGRESS ENERGY NUCLEAR POWER PLANT PROJECT.

LONG TERM:

DESALINATION:

WORK WITH PROGRESS ENERGY ON THE FUTURE POTENTIAL DEVELOPMENT OF A DESAL PLANT INTERCONNECTED TO THE LOCAL AREA AND IMMEDIATE REGION.

FUNDING DISCUSSION:

WRWSA IS CURRENTLY FUNDED BY A PER CAPITA ASSESSMENT OF $.20 PER PERSON PER YEAR. THIS IS NOT ENOUGH FUNDING TO IMPLEMENT THE REGIONAL WATER SUPPLY PLAN.

ALTERNATIVE SOURCES OF ADDITIONAL REVENUES INCLUDE:

- RAISING PER CAPITA ASSESSMENT
- CHARGE UTILITY SYSTEMS WHO WOULD BE PART OF, AND BENEFIT FROM, THE REGIONAL SUPPLY PLAN.
- SECURE CO-FUNDING FROM THE WATER MANAGEMENT DISTRICT BASIN BOARDS.
- SECURE LOANS AND GRANTS THROUGH DEP, AND STATE REVOLVING FUND (SRF) PROGRAM.